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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/709,921      | 06/06/2004  | Yung-Yi LIU          | NANP0002USA         | 3920             |

27765 7590 11/15/2006

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| EXAMINER |
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ECHELMEYER, ALIX ELIZABETH

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| ART UNIT | PAPER NUMBER |
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1745

DATE MAILED: 11/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

✓

|                              |  |                                   |  |
|------------------------------|--|-----------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/709,921         | <b>Applicant(s)</b><br>LIU ET AL. |  |
|                              | <b>Examiner</b><br>Alix Elizabeth Echelmeyer | <b>Art Unit</b><br>1745           |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 September 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 and 9-21 is/are pending in the application.
- 4a) Of the above claim(s) 10-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) 2,4-6,9 and 16-21 is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☒ Claim(s) 1 and 3 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Specification***

1. The abstract of the disclosure is objected to because it describes the invention as "novel". The abstract should not purport to the merits of the invention. Correction is required. See MPEP § 608.01(b).
2. The specification is objected to for not including separate brief descriptions of Figures 4-12.

### ***Claim Objections***

3. Claim 1 is objected to because of the following informalities: in line 19, "the anode" should be "cathode". Appropriate correction is required.
4. Claim 3 is objected to because of the following informalities: "Ni/Au" should be "nickel and gold". Appropriate correction is required.

### ***Allowable Subject Matter***

5. Claims 1 and 3 are objected to. Claims 2, 4-6, 9 and 15-21 are allowed. The following is an examiner's statement of reasons for allowance: the prior art fails to teach or render obvious the claimed invention.

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- Shu et al. (US 2005/0158608) teach a similar fuel cell but the priority information on this application is incorrect so the date of application does not qualify this reference to be usable in a rejection.
- Rosenfeld et al. (US 2003/0091878) teach a fuel cell with a hydrogen generator (abstract). The fuel cell of Rosenfeld et al. contains a porous cathode and a porous anode ([0046], [0049]). The fuel provided by the hydrogen generator is contained below the anode (Figure 1; [0126], [0130]).

Rosenfeld et al. teach that the anodes and cathodes are found in a plurality of apertures in the frames; however, these apertures differ from the apertures in the present invention since the apertures of Rosenfeld et al. are for containing the anode and cathode within the frame while the apertures of the present invention are to provide a via through which an electrical connection can be made. Further, the electrode areas of the instant invention are electroplated and contain more than 50% in surface area apertures. The electrode areas of Rosenfeld et al. are 100% apertures.

The present invention also includes an intermediate bonding layer to connect the anode and cathode frames and also to contain the membranes. The fuel cell of Rosenfeld et al. does not include an intermediate bonding layer; as seen in Figure 1, the membranes (reference numeral 156) are placed between the anodes and cathodes but there is no frame. The bonding layer of the instant invention is also used to insulate the cathode and anode plates; the cell of Rosenfeld et al. does not provide insulation between the plates.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

6. This application is in condition for allowance except for the following formal matters:

Claims 1 and 3 are objected to, the specification is objected to.

Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alix Elizabeth Echelmeyer whose telephone number is 571-272-1101. The examiner can normally be reached on Mon-Fri 7-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's trainer, Susy N. Tsang-Foster can be reached on 571-272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Alix Elizabeth Echelmeyer  
Examiner  
Art Unit 1745

aee

  
SUSY TSANG-FOSTER  
PRIMARY EXAMINER